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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,439	01/07/2002	James W. Bush	9997A	9490

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07/17/2003

CARRIER CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
A&R BLDG.
CARRIER PARKWAY
SYRACUSE, NY 13221

EXAMINER

BAREFORD, KATHERINE A

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 07/17/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/038,439

Applicant(s)

BUSH ET AL.

Examiner

Katherine A. Bareford

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Inventorship

1. The Examiner notes that on May 14, 2002, a paper was filed headed "Statement as to Addition of Inventor". This paper indicated that a petition to add an additional inventor to the application would be submitted in the near future. However, no such petition has been received in the file as of this time.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14, line 1, the preamble of this claim refers to "The screw machine of claim 13", thus appearing to indicate that claims 13 and 14 are product claims. However, claim 13 is a process claim, and it does not appear that a product-by-process claim was intended. As a result, claim 14 should be corrected to indicate process claim status. For the purposes of examination, the Examiner has treated the claim as being a process claim.

Claim Rejections - 35 USC § 102

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4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Rao et al (US 5638600).

Rao teaches a method for coating the surface of components of a fluid pump for compressing gases or pumping liquids. Column 1, line 55 through column 2, line 35. The system can be in the form of a screw machine. See figures 1 and 3. Components for the system are provided. Figures 1-3 and column 4, lines 5-20. The components include a rotor housing having at least a pair of parallel, overlapping bores. Figures 1-2 and column 4, lines 5-20. A conjugate pair of intermeshing rotors are provided for location in the bores. Figures 1 and 3 and column 4, lines 5-20. Each of the rotors can have helical lobes having radially outward tip portions and intervening radially inward root portions. Figures 1 and 3. At least one of the components is rough coated with a conformable coating. See column 1, lines 65 through column 2, line 30. The coating can be applied in a variable or excess thickness. See column 2, lines 1-10 and column 5, lines 25-30. The applied conformable coating can be leveled by a standard grinding operation to a substantially uniform thickness prior to final assembly of the plurality of components. Column 2, lines 1-10 (the initial coat). This thickness is such so as to ease assembly of the components while maintaining coating performance. Column 2, lines 1-10.

Then after assembly a final adjustment in the thickness is made by operating the pump to provide a zero clearance between relatively moving parts. Column 2, lines 20-30.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 2-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rao as applied to claim 1 above, and further in view of Thermal Spraying: Practice, Theory, and Application (hereinafter TS).

Rao teaches all the features of these claims except the means for leveling. Rao teaches that operating the assembled components, i.e. using a mating component to each other component, provides leveling to the desired uniform thickness. Column 2, lines 20-30. Rao further teaches that the components include a screw rotor and another intermeshing screw rotor. Figures 1 and 3 and column 4, lines 5-20. Rao further teaches that when the parts are assembled the parts would

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be a set distance apart. Column 5, lines 15-35. Rao further teaches coating all rubbing and wearing surfaces, including the tips of the lobes of the rotors, the roots of the lobes of the rotors and the surface of the bores. Column 2, lines 55-65 and column 4, lines 5-20.

TS teaches that after applying a coating, it is well known to finish the coating by grinding operations. See pages 94-95. TS also indicates that standard grinding operations include the use of a grinding wheel which can be used for exterior and internal coatings. See page 95. The wheel is rotated and is moved relative to the coating to provide leveling and grinding. See pages 95 and 103-105.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rao to use a grinding wheel system as suggested by TS with an expectation of forming a desirable finished product, because Rao teaches an initial thickness can be set up using a standard grinding operation, and TS teaches features of a standard grinding operation. The grinding wheel of TS would correspond to the moving "means for leveling" claimed by applicant and desired at page 11 of the application, because the "grinding wheel" of TS would correspond to a "sizing rod" since both would be rods that performed leveling. As to the use of a mating component for leveling, this would be suggested by Rao, which indicates that mating components (after assembly) will provide desired leveling to final measurements, and therefore, it would be clear that mating components can be used to level the coated components.

9. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rao et al (US 5638600).

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Rao teaches all the features of these claims, as discussed in the 35 USC 102(b) rejection above, except the coating of the discharge end and outlet casing. However, Rao teaches coating all rubbing and wearing surfaces. See column 2, lines 55-65 and column 4, lines 5-20.

It is the Examiner's position that it is conventional for a screw machine to have an outlet casing disposed at a discharge end of the rotor housing, with each rotor having a discharge end facing the outlet casing. If applicant disagrees, he should so state in response.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rao to coat the outlet casing and discharge end as claimed with an expectation of forming a desirable finished product, because the use of the outlet casing and discharge ends would be conventional for the pump system, and Rao teaches to coat all potential rubbing and wearing surfaces of the system, which would include those surfaces.

10. Aoki (US 5364250) provides coating and leveling components of a screw compressor.
- W* Biswas (US 4466785) provides coating and leveling components of a rotary compressor.
- Telang et al (US 3981688) provides coating and leveling of a rotor housing. Miki et al (US 4744738) provides coating and leveling for a gear pump.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (703) 308-0078. The examiner can normally be reached on M-F(7:00-4:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the


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organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


KATHERINE A. BAREFORD
PRIMARY EXAMINER
GROUP 1100/100